

**R E M A R K S**

The Office Action dated June 16, 2004 presents the examination of claims 1, 3, 5, 6, 10, 12, 13, 15, and 17-29. Claims 7-9 are withdrawn from consideration. Claims 25-27 are allowed. Claims 1-24 and 28-29 are canceled herein. Claim 25 is currently amended. Support for subject matter added to claim 25 is found in the specification. Specifically, support for the recitation of "at least one" is found on page 3, line 4 of the specification and support for "107<sup>th</sup> Met" is found on page 25, lines 11-14. Claims 30-46 are added. Support for the addition of claims 30-46 is found in the specification, as noted in the table below. No new matter is inserted into the application.

***Interview***

An interview was held with the Examiner at the United States Patent and Trademark Office on October 8, 2004. The Examiner's assistance in expediting prosecution of the present application is greatly appreciated.

During the interview, the Examiner reiterated her position that the specification does not describe or enable a "genus" of  $\alpha$ -amylase mutants. She stated that any allowable claims should be drawn to specific mutants disclosed in the specification (i.e., claims 25-27).

In order to obtain immediate allowance of the present application, but not to acquiesce to the Examiner's position, Applicants cancel claims 1-24 and 28-29. Applicants reserve the right to continue prosecution of the canceled claims, for example in a Divisional Application.

Claims 25-27 are directed to specific  $\alpha$ -amylase mutants. As noted in claim 25, the specification discloses specific mutations in SEQ ID NO: 1 at amino acid positions 11<sup>th</sup> Tyr, 16<sup>th</sup> Glu, 49<sup>th</sup> Asn, 84<sup>th</sup> Glu, 107<sup>th</sup> Met, 144<sup>th</sup> Ser, 167<sup>th</sup> Gln, 169<sup>th</sup> Tyr, 178<sup>th</sup> Ala, 188<sup>th</sup> Glu, 190<sup>th</sup> Asn, 205<sup>th</sup> His and 209<sup>th</sup> Gln. The Examiner will note that claim 25 is amended to include the amino acid position "107<sup>th</sup> Met" which was inadvertently omitted from the previous version of claim 25. Support for "107<sup>th</sup> Met" is found on page 25, lines 11-14.

Claims 30-46 are added, directed to the specific combinations of substitutions disclosed in the specification. Support for these mutant  $\alpha$ -amylases is as shown in the following table:

Claim	Mutant $\alpha$ -amylase	Abbreviation	Support
30, 36	Q167E/Y169K	QEYK	Page 24, Table 3
31, 37	N190F/Q209V	NFQV	Page 24, Table 3
32, 38	Q167E/Y169K/N190F/Q209V	QEYK/NFQV	Page 24, Table 3
43, 44	S144P/N190F/Q209V	SP/NFQV	Page 25, Table 4
45, 46	E16P/S144P/N190F/Q209V	EPSP/NFQV	Page 25, Table 4
33, 39	M107L/Q167E/Y169K/N190F/Q209V	ML/QEYK/NFQV	Page 26, Table 5
34, 40	N49S/M107L/Q167E/Y169K/N190F/Q209V	NSML/QEYK/NFQV	Page 26, Table 5
35, 41	N49S/M107L/H205R/Q167E/Y169K/N190F/Q209V	NSMLHR/QEYK/NFQV	Page 26, Table 5
42	LA-K38AMY/Q167E/Y169K/N190F/Q209V	LA-K38AMY/ QEYK/NFQV	Page 27, Table 7

For example, new claim 30 is directed to a mutant  $\alpha$ -amylase obtained by substituting the 167<sup>th</sup> Gln and 169<sup>th</sup> Tyr of SEQ ID NO:1 with another amino acid. New claim 36, which is dependent from claim 30, specifies that the 167<sup>th</sup> Gln is substituted with Glu, and wherein said 169<sup>th</sup> Tyr is substituted with Lys. This specific  $\alpha$ -amylase mutant is abbreviated as Q167E/Y169K or "QEYK" and is disclosed on page 24, Table 3 of the specification. As shown in Table 3, this  $\alpha$ -amylase mutant possessed 45% residual activity after 30 minutes in an assay for heat resistance.

Applicants respectfully submit that the claims are directed to allowable subject matter. In other words, the claims are directed to specific mutants disclosed in the specification which the Examiner indicated would be allowable during the interview.

Therefore, all of the rejections/objections of record have been fully addressed and overcome by the instant Reply. The present application is now in condition for allowance. The Examiner is respectfully requested to issue a Notice of Allowance indicating that claims 25-27 and 30-46 are allowed.

#### ***Claims Objections***

The Examiner objects to claim 13. Claim 13 is canceled thus rendering the objection moot.

***Rejection under 35 U.S.C. § 112, first paragraph***

The Examiner rejects claims 1, 10, 12, 13, 15, 17-24, and 28-29 under 35 U.S.C. § 112, first paragraph for allegedly lacking written description, claims 1, 10, 12, 13, 15, 17-24, and 28 under 35 U.S.C. § 112, first paragraph for allegedly containing new matter, and claims 1, 3, 5, 6, 10, 12, 13, 15, and 17-24 under 35 U.S.C. § 112, first paragraph for allegedly lacking enablement. Claims 1-24 and 28-29 are canceled, thus rendering any rejection thereof moot.

***Rejection under 35 U.S.C. § 112, second paragraph***

The Examiner rejects claims 6, 13, 15, 17-24 and 29 under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite. Claims 6, 13, 15, 17-24 and 29 are canceled, thus rendering rejection thereof moot.

***Conclusion***

If there are any minor matters precluding allowance of the application which may be resolved by a telephone discussion, the Examiner is respectfully requested to contact Kristi L. Rupert, Ph.D. (Reg. No. 45,702) at (703) 205-8000.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of two (2) months

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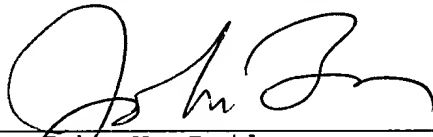
to November 16, 2004, in which to file a reply to the Office Action. The required fee of \$430.00 is enclosed herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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